

Makiling Biodiversity Information System (MakiBIS) Version 2.1: Taxonomic Data Completion, Additional References Suggestion, and Interactive Map Plotting

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Abstract - Makiling Biodiversity Information System (MakiBIS) is a web application that was first developed in 2011 to serve as a repository for all the information about fauna and flora in Mount Makiling. A system overhaul was done in 2019 to adhere to the rapidly changing industry standards. This study further improved the system by automating minor but crucial functionalities and provided visualization to information related to location. When adding a new species, just typing in the genus field would automatically complete the rest of the taxonomic data above it. Additional references would also be automatically added when both the genus and species fields are filled in. All the data that will be added are fetched from the Global Biodiversity Information Facility (GBIF) through the use of its provided Application Programming Interface (API). To further utilize the data related to location, this update also introduced specimen level information. Each specimen's location can be seen through an interactive map of Mount Makiling. The application was tested by 12 individuals. Using the System Usability Scale (SUS) questionnaire, MakiBIS gained an average SUS score of 85.21/100 which is equivalent to a grade of A and has an adjective rating of excellent according to UUIX Trend.

MakiBIS was populated with Information on the various species of flora and fauna recorded in Mt Makiling including taxonomy, species author, botanical description, habitat, mode of reproduction, endemism, economic use, conservation status, photo and references. Currently, 1,530 species of flora and fauna are encoded in the MakiBIS database. The information system will be used to manage the taxonomic and other information of the species in Mt. Makiling. Aside from taxonomic classification information, the biodiversity data was analyzed for patterns and distribution, determination of potential threats, and planning strategies towards biodiversity conservation and management.

Keywords - Mount Makiling, biodiversity information system, web application, application programming interface, interactive map